EPIDEMIOLOGY, PREVENTION AND SCREENING

A Snapshot of Cancer in Alberta

2001

A Snapshot of Cancer in Alberta

2001

Report Prepared by:

Heather Bryant, M.D., Ph.D., Director
Ellen Murphy, Strategic Development Officer
Claire Fayers, Health Resources Coordinator
Nancy Argyle, Senior Writer/Photographer, Isis Mediagroup Inc.
with assistance from Division of Epidemiology, Prevention & Screening Staff

Layout and Design:

Nancy Argyle, Senior Writer/Photographer, Isis Mediagroup Inc.
Claire Fayers, Health Resources Coordinator

Contents

The Framework i

About the Alberta Cancer Board i
Data sources i

The Bigger Picture 1

Looking ahead 1
The face of cancer 1
Cancer is an important health problem 2
There are many different types of cancer 3
Cancer affects men and women differently 4
Survival after diagnosis 5
Survival curves 6
Cancer cases and deaths are increasing 7
Cancer rates 8
Cancer affects all ages 9

A Portrait of Prevention 10

Strategies in cancer prevention 10
Tobacco control 11
Tobacco alliance 11
Nutrition and healthy diet 12
Sun sense 13

Screening Profiles 14

Breast cancer screening 14
Cervical cancer screening 15
Alberta Cervical Cancer Screening Program 15

Focus on the Future 16

Prostate cancer 16
Colorectal cancer 16
Physical activity 16
Research is an investment 17
The Tomorrow Project 18

A Broader Scope 19

Alberta Cancer Control Initiative 19

The Framework

About the Alberta Cancer Board

The Alberta Cancer Board is a Provincial Health Authority operating cancer facilities and programs in Alberta. Services include cancer prevention, early detection, diagnosis, treatment, research and education. Also included in this role is coordinating, in cooperation with others, the planning and delivery of provincial cancer initiatives.

As part of this mandate, the Alberta Cancer Board operates **cancer treatment and research facilities** throughout Alberta.

This report will focus specifically on the activities of the Alberta Cancer Board's **Division of Epidemiology, Prevention and Screening (EPS)**. The Division of EPS includes:

- **Population health research:** which conducts research into population-based trends in cancer incidence, morbidity and mortality, the causes of cancer, prevention strategies and the early detection of cancer.
- **Alberta Cancer Registry:** a population-based registry of cancer cases in the province.
- **Screen Test** Alberta Program for the Early Detection of Breast Cancer: a screening mammography and breast health education program with fixed-site offices in Calgary and Edmonton and mobile mammography services throughout the province.
- **Cancer prevention outreach:** which provides a variety of services to RHAs, including cancer information, assistance with program and policy development and linkages to resources.

Data sources

The Alberta Cancer Board's Cancer Registry records all new cases of cancer and cancer deaths for the province. This population-based data assists researchers and health care providers with monitoring cancer trends and planning appropriate control strategies. Research, using this cancer registry information, is crucial for identifying risk factors.

All data provided in this report, including the source data used for the graphs, is from the Alberta Cancer Registry unless otherwise noted.

103-00976/

The Bigger Picture

Looking ahead

In the new millennium, cancer continues to be a significant health issue for Albertans.

Traditionally resources have been allocated to the diagnosis and treatment of cancer. In recent years it has become more apparent that **prevention** holds great potential for dramatically reducing cancer cases and as such requires the allocation of more financial investment and resources.

The face of cancer

The Alberta Cancer Registry recorded almost 10,000 new cases of invasive cancer (excluding nonmelanoma skin cancer) per year in 1996, 1997 and 1998. In 2001, over 11,000 Albertans will be diagnosed with invasive cancer and 5,000 Albertans will die from cancer.

More effective cancer control is needed to limit human suffering and loss of life. In addition to affecting patients diagnosed with cancer, the disease affects their families, children, friends, and co-workers.

Effective cancer control requires **a concerted and shared effort** on the part of health agencies, government, researchers, the medical community and the public.

The Bigger Picture

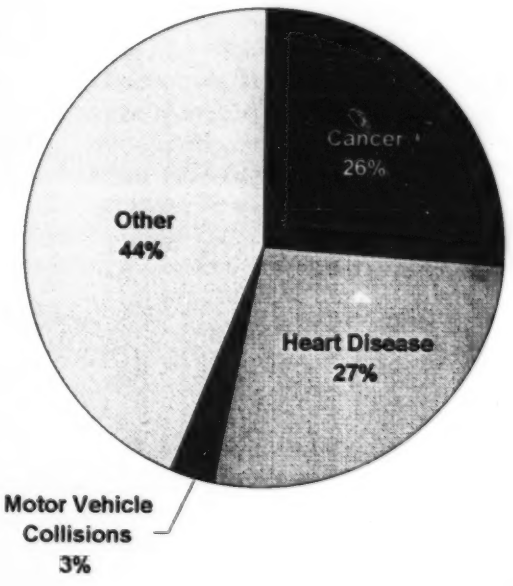
Cancer is an important health problem

Cancer has long been a leading cause of premature death in Albertans and is expected to surpass heart disease as the leading cause of all deaths in the near future. In 1998 cancer accounted for 26 percent of deaths and heart disease accounted for 27 percent of deaths during the same year.

Over the past few decades, the mortality rate from heart disease has fallen. Over the same period, cancer mortality rates have increased slightly. This has resulted in a narrowing of the gap between the percentage of deaths attributable to cancer and heart disease.

In Alberta, annual premature death from cancer is responsible for an estimated 67,000 years of life lost.

Percentage Deaths of Albertans, 1998

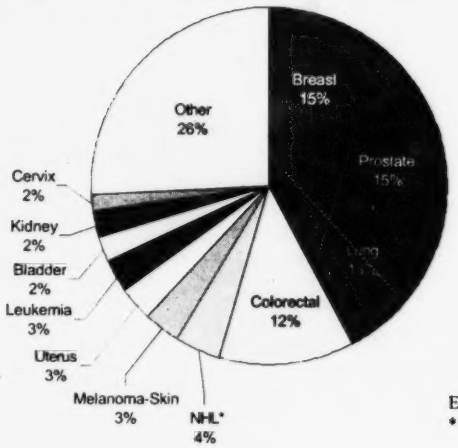


Source: Government of Alberta, *Alberta Vital Statistics - Annual Review (1998)*

There are many different types of cancer

There are over 100 different types of cancer. Just four types, breast, prostate, lung and colorectal, account for over half of all new invasive cases (excluding nonmelanoma skin cancers).

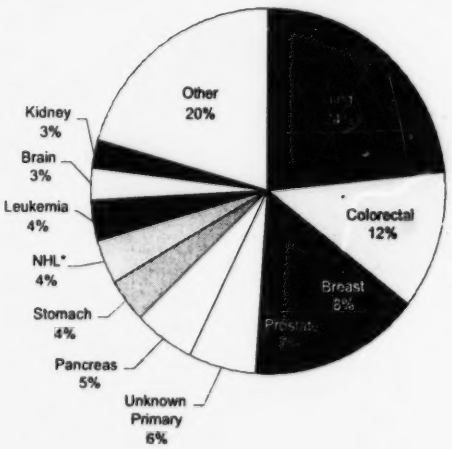
New Invasive Cancers by Site, Alberta 1998



Excludes nonmelanoma skin cancer
* Non-Hodgkin's Lymphoma

These same four sites are also **responsible for over half of all cancer deaths** but in slightly different proportions. Lung cancer, mainly attributable to smoking, is the leading cause of cancer deaths.

Cancer Deaths by Site, Alberta 1998



The Bigger Picture

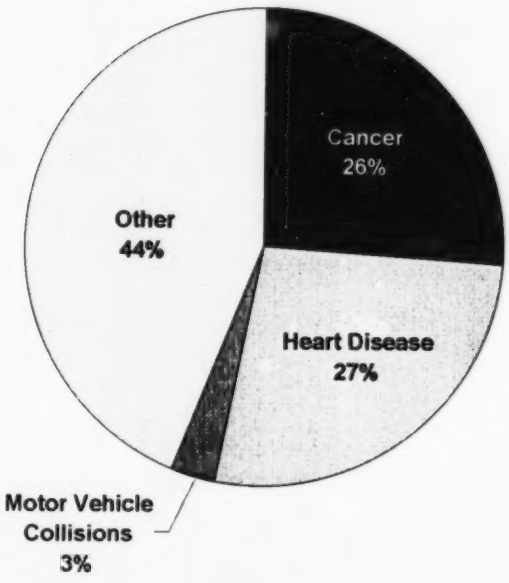
Cancer is an important health problem

Cancer has long been a leading cause of premature death in Albertans and is expected to surpass heart disease as the leading cause of all deaths in the near future. In 1998 cancer accounted for 26 percent of deaths and heart disease accounted for 27 percent of deaths during the same year.

Over the past few decades, the mortality rate from heart disease has fallen. Over the same period, cancer mortality rates have increased slightly. This has resulted in a narrowing of the gap between the percentage of deaths attributable to cancer and heart disease.

In Alberta, annual premature death from cancer is responsible for an estimated 67,000 years of life lost.

Percentage Deaths of Albertans, 1998

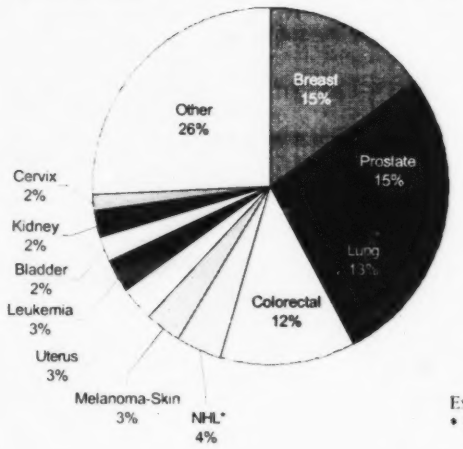


Source: Government of Alberta, *Alberta Vital Statistics - Annual Review (1998)*

There are many different types of cancer

There are over 100 different types of cancer. Just four types, breast, prostate, lung and colorectal, account for over half of all new invasive cases (excluding nonmelanoma skin cancers).

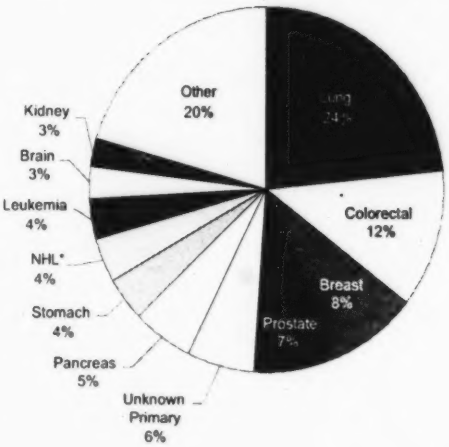
New Invasive Cancers by Site, Alberta 1998



Excludes nonmelanoma skin cancer
* Non-Hodgkin's Lymphoma

These same four sites are also **responsible for over half of all cancer deaths** but in slightly different proportions. Lung cancer, mainly attributable to smoking, is the leading cause of cancer deaths.

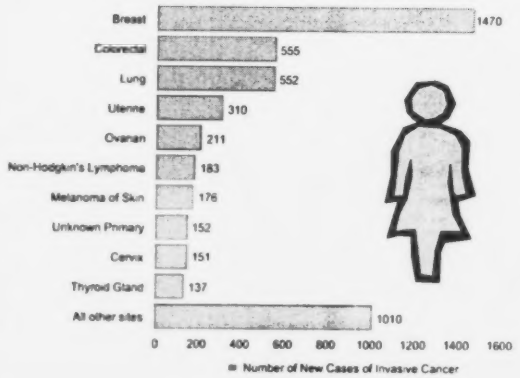
Cancer Deaths by Site, Alberta 1998



Cancer affects men and women differently

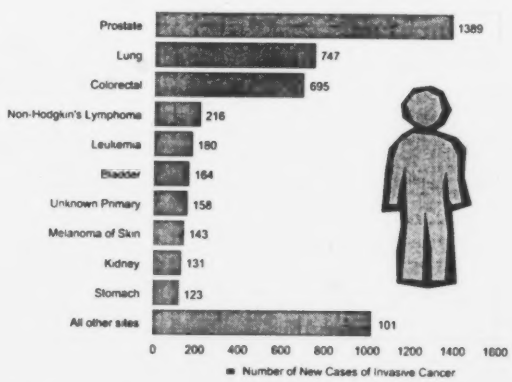
There are many differences between males and females when comparing the sites most commonly affected by cancer. After breast cancer, colorectal, lung, uterine and ovarian cancers are among the top five cancers that affect females. After prostate cancer, lung, colorectal, Non-Hodgkin's Lymphoma and leukemia are the most common cancers that affect males. When looking at cancer deaths, the top ten sites are similar for males and females but vary by where they are ranked on the charts below.

Top Ten Sites for New Invasive Cancers, Females, Alberta 1998



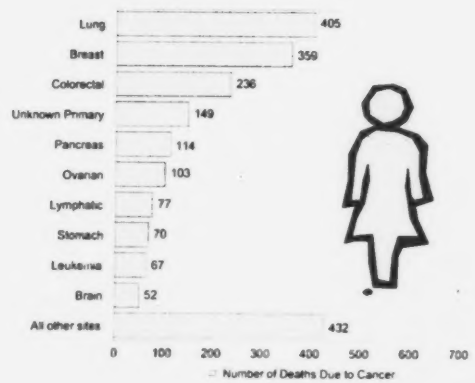
Excludes nonmelanoma skin cancer

Top Ten Sites for New Invasive Cancers, Males, Alberta 1998

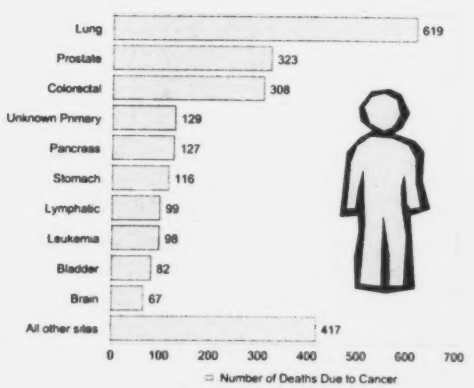


Excludes nonmelanoma skin cancer

Top Ten Sites for Cancer Deaths, Females, Alberta 1998



Top Ten Sites for Cancer Deaths, Males, Alberta 1998



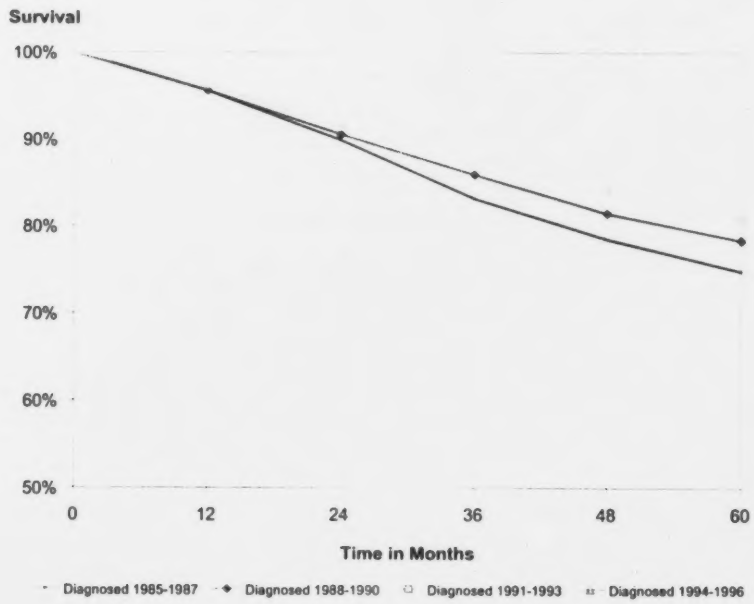
Survival after diagnosis

The number of years of survival after cancer diagnosis depends on several factors. **Survival is determined by the stage of cancer at diagnosis, type of cells affected, age at diagnosis and treatment.**

As advances are made in early detection, research and treatment of cancer, survival for patients diagnosed with cancer improves.

As indicated in the graph below, women diagnosed with breast cancer between 1985 and 1987 had a 75% chance of survival 60 months after diagnosis, whereas women diagnosed between 1994 and 1996, have an 83% chance of survival 60 months after diagnosis. This increase in survival for women diagnosed in the mid 1990s is largely due to increases in early detection and breakthroughs in research and treatment.

Breast Cancer Survival by Year of Diagnosis

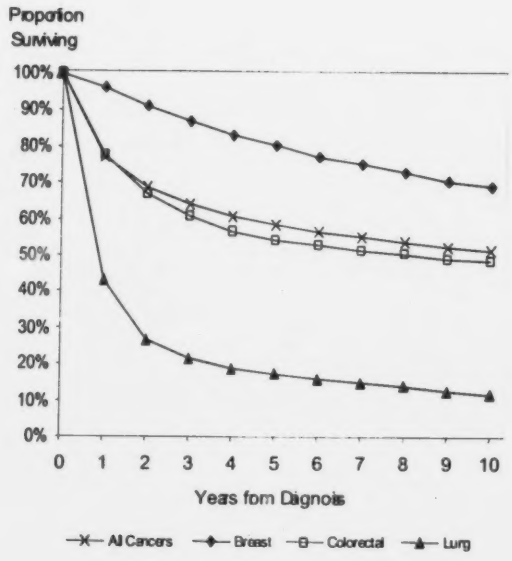


Survival curves

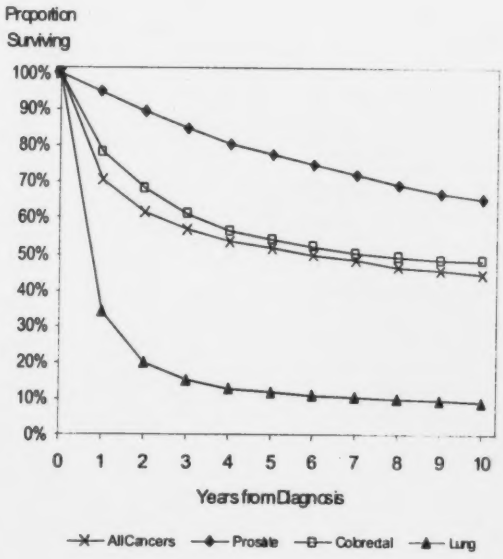
As indicated in the survival curves below, survival for some types of cancer is better over time than for others. For example, survival after ten years for breast, prostate and colorectal cancers are much higher than survival for lung cancer.

Cause Specific Survival Curves, Alberta (cases diagnosed 1988 - 1994)

Female Cancers



Male Cancers



Overall, the proportion of cancer patients surviving longer than ten years after diagnosis is now higher than 50%. This is due to breakthroughs in research and treatment in several areas, most notably in the area of childhood cancers.

Improved survival has been particularly dramatic for the most common childhood neoplasm, acute lymphocytic leukemia, as well as for lymphomas and kidney cancer. Essentially no one survived childhood leukemia 40 years ago, but currently approximately 80% of Canadian children and teenagers with acute lymphoblastic leukemia are alive five years after diagnosis.*

* *Canadian Cancer Statistics*, 2001

Cancer cases and deaths are increasing

As indicated below, the number of new cases of invasive cancer and the number of deaths due to cancer in 1998 were very similar for both females and males.

Number of New Cases of Invasive Cancer and Deaths Due to Cancer, Alberta 1998

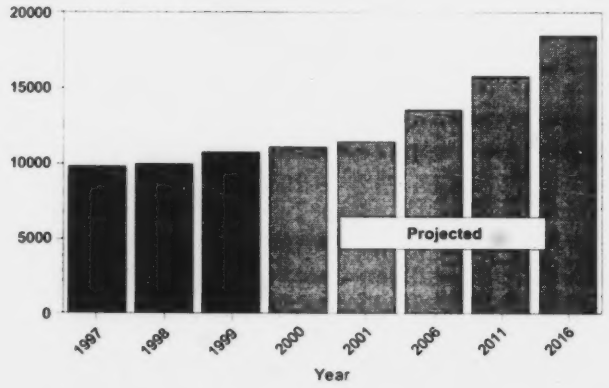
	Number of New Cases of Invasive Cancer	Number of Deaths Due to Cancer
Females	**4907**	**2064**
Males	**4964**	**2381**

Excludes nonmelanoma skin cancer

The number of cancer cases increase each year in Alberta due to an aging and growing population base. By 2016, it is projected that the number of new cases could be almost double the number of new cases diagnosed in 1997.

With the "baby boomers" generation becoming seniors, the expected impact on the health care system will be dramatic over the next few decades.

New Cases of Invasive Cancer in Alberta



Excludes nonmelanoma skin cancer

Cancer cases and deaths are increasing

As indicated below, the number of new cases of invasive cancer and the number of deaths due to cancer in 1998 were very similar for both females and males.

Number of New Cases of Invasive Cancer and Deaths Due to Cancer, Alberta 1998

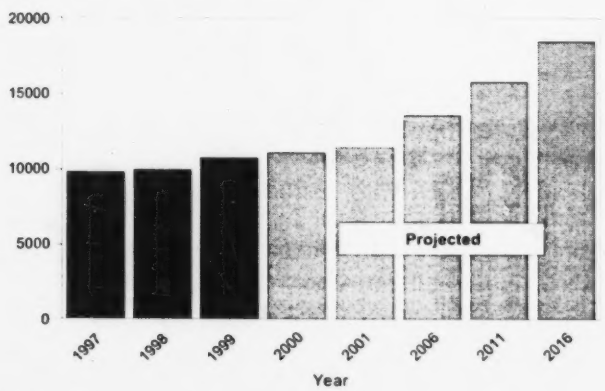
	Number of New Cases of Invasive Cancer	Number of Deaths Due to Cancer
Females	**4907**	**2064**
Males	**4964**	**2381**

Excludes nonmelanoma skin cancer

The number of cancer cases increase each year in Alberta due to an aging and growing population base. By 2016, it is projected that the number of new cases could be almost double the number of new cases diagnosed in 1997.

With the "baby boomers" generation becoming seniors, the expected impact on the health care system will be dramatic over the next few decades.

New Cases of Invasive Cancer in Alberta



Excludes nonmelanoma skin cancer

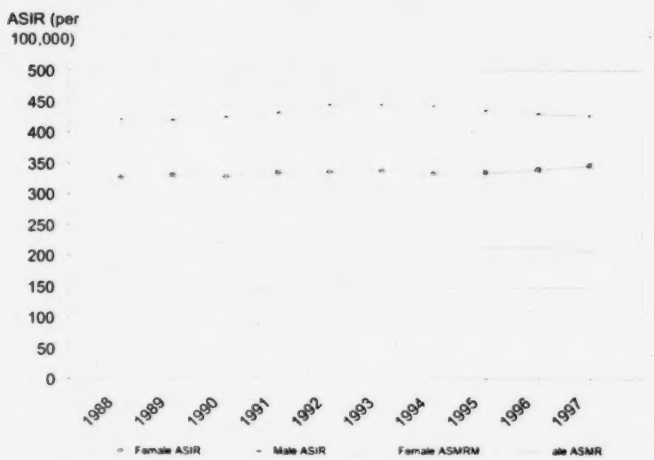
Cancer rates

As noted on the previous page, the number of new cases of cancer is increasing in Alberta because the population is aging and the risk of developing cancer increases with age.

A different perspective of the impact of cancer on the Alberta population can be seen in age-standardized incidence and mortality rates. Age-standardized rates factor out the bias of age in the make up of the population being compared, thereby providing more reliable rates for comparison.

Graphs showing **Age-standardized incidence and mortality rates** tend to be flatter than graphs that indicate the **number of cases and deaths.**

Age-Standardized Incidence and Mortality Rates for All Invasive Cancers, Females and Males, Alberta 1997



Excludes nonmelanoma skin cancer

Age specific incidence rates (identified in the table below), show that cancer tends to develop at an earlier age in women than men. This is due to the fact that the highest proportion of female cancer is breast cancer while in males it is prostate cancer. Generally, breast cancer develops earlier in life than prostate cancer which results in women being diagnosed at a younger age and contributes to a higher level of premature death among women.

Age Specific Incidence Rates for All Invasive Cancers, Females and Males, Alberta 1997 (Rate per 100,000)

Age Group	0-14	15-44	45-54	55-64	65-74	75-84	85+
Female	13	103	449	871	1336	1729	1894
Male	14	56	267	935	2180	2893	3313

Excludes nonmelanoma skin cancer

The Bigger Picture

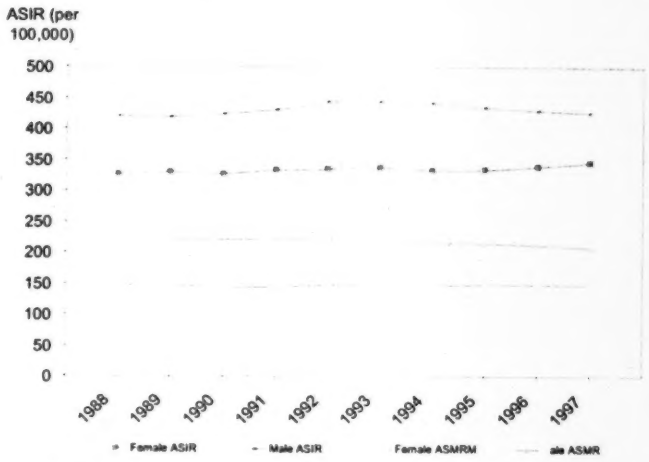
Cancer rates

As noted on the previous page, the number of new cases of cancer is increasing in Alberta because the population is aging and the risk of developing cancer increases with age.

A different perspective of the impact of cancer on the Alberta population can be seen in age-standardized incidence and mortality rates. Age-standardized rates factor out the bias of age in the make up of the population being compared, thereby providing more reliable rates for comparison.

Graphs showing **Age-standardized incidence and mortality rates** tend to be flatter than graphs that indicate the **number of cases and deaths.**

Age-Standardized Incidence and Mortality Rates for All Invasive Cancers, Females and Males, Alberta 1997



Excludes nonmelanoma skin cancer

Age specific incidence rates (identified in the table below), show that cancer tends to develop at an earlier age in women than men. This is due to the fact that the highest proportion of female cancer is breast cancer while in males it is prostate cancer. Generally, breast cancer develops earlier in life than prostate cancer which results in women being diagnosed at a younger age and contributes to a higher level of premature death among women.

Age Specific Incidence Rates for All Invasive Cancers, Females and Males, Alberta 1997 (Rate per 100,000)

Age Group	0-14	15-44	45-54	55-64	65-74	75-84	85+
Female	13	103	449	871	1336	1729	1894
Male	14	56	267	935	2180	2893	3313

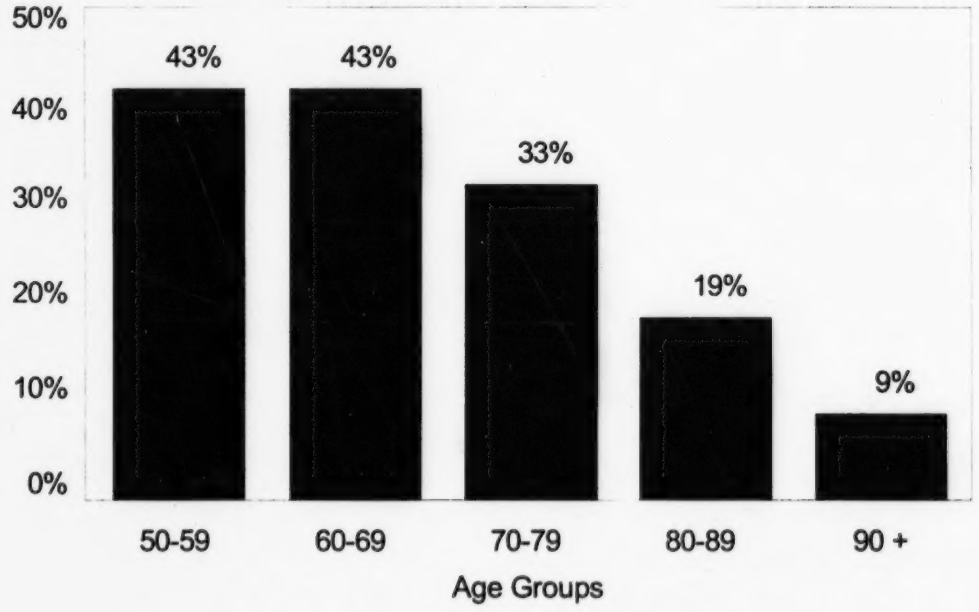
Excludes nonmelanoma skin cancer

The Bigger Picture

Cancer affects all ages

Although cancer risk does increase with age, **cancer is not only a disease of the elderly.** In fact, it is a disease that impacts individuals in the prime of their lives, affecting their careers, relationships, quality of life and life expectancy.

Deaths Due to Cancer by Age Group as a Percentage of All Deaths, Alberta 1998



Diseases accounting for high proportions of population mortality commonly increase with age. For this reason, when looking at the percentage of deaths due to cancer within each age group, we see that cancer is proportionally more important as a cause of death for middle aged groups.

Strategies in cancer prevention

At least **50% of all cancers are preventable.** Many experts agree that this figure is probably closer to 75%. Cancer prevention is our best opportunity to reduce cancer deaths.

The most important strategies in cancer prevention are:

- avoiding use and exposure to tobacco
- focussing on a healthy diet high in vegetables and fruit
- protecting skin from sun exposure
- participating in organized breast and cervical cancer screening programs

The important risk factors for cancer are common and wide-spread and most do not operate in isolation. For example, nutrition, physical activity and obesity are all linked. In some cases these risk factors may operate synergistically to further increase a person's risk of developing cancer.

Other risks may pose less of a threat to mortality, but still tend to greatly increase incidence rates. For example, exposure to the sun's ultraviolet radiation ranks low as a risk factor associated with cancer deaths but it certainly has an **impact on the number of new cases of skin cancer.**

Lifestyle factors **greatly influence our risk of developing other diseases** such as diabetes, respiratory and cardiovascular disease in addition to cancer. Taking action to prevent cancer can also reduce the impact of other chronic diseases.

Causes of Cancer Deaths

Risk Factors	Percentage
Tobacco	30
Adult diet / obesity	30
Sedentary lifestyle	5
Occupational factors	5
Family history of cancer	5
Viruses / other biological agents	5
Prenatal factors / growth	5
Reproductive factors	3
Alcohol	3
Socioeconomic status	3
Environmental pollution	2
Ionizing / ultraviolet radiation	2
Prescription drugs / medical procedures	1
Salt / food additives / contaminants	1

Source: *Cancer Causes & Control*, Volume 7, November 1996

Tobacco control

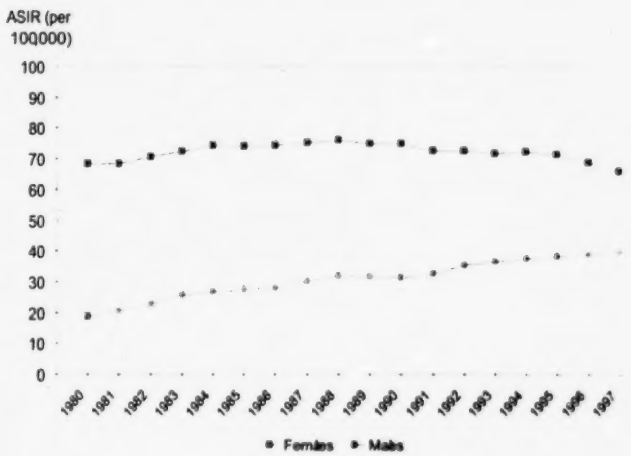
In Alberta, lung cancer is the leading cause of cancer deaths in men and women combined. Of all cancers, lung cancer is the one disease that is almost completely preventable. Cigarette smoking is implicated in nearly **85 percent of all new lung cancer cases.** In addition to lung cancer, tobacco use is also linked to cancers of the mouth, throat, bladder, esophagus, pancreas, cervix and kidney.

Unfortunately, the lung cancer incidence rates in Alberta females **increased markedly over the last two decades** and the number of female cancer cases has more than tripled since 1980.

The rising trend in female lung cancer incidence rates reflects an increase in smoking behavior 20 to 30 years ago. The lung cancer rates in Alberta males has declined, reflecting a decrease in smoking behavior 20 to 30 years ago.

Although male lung cancer incidence rates have peaked and are decreasing, they are still higher overall than the female rates because smoking prevalence has consistently been higher among men.

Age Standardized Incidence Rates (ASIR) for Invasive Lung Cancer, Alberta 1980 - 1987



In the **1999 Canadian Tobacco Use Monitoring Survey**, Health Canada noted the following statistics:

- 26% of Albertans aged 15 and older were smokers
- Of youth aged 15-19 in Alberta, 26% were current smokers
- In Alberta, a higher proportion of males (29%) aged 15-19 were smokers than females (23%) in the same age category (this is the reverse of national findings)

Tobacco alliance

To reduce cancer deaths, a comprehensive tobacco control strategy is needed that addresses **prevention, cessation and protection.**

In the interest of reducing cancer deaths, the Alberta Cancer Board sought out partnerships with other agencies interested in the same goals. In 1998, a coalition of organizations including the Alberta Cancer Board, formed the **Alberta Tobacco Reduction Alliance (ATRA).**

Nutrition and healthy diet

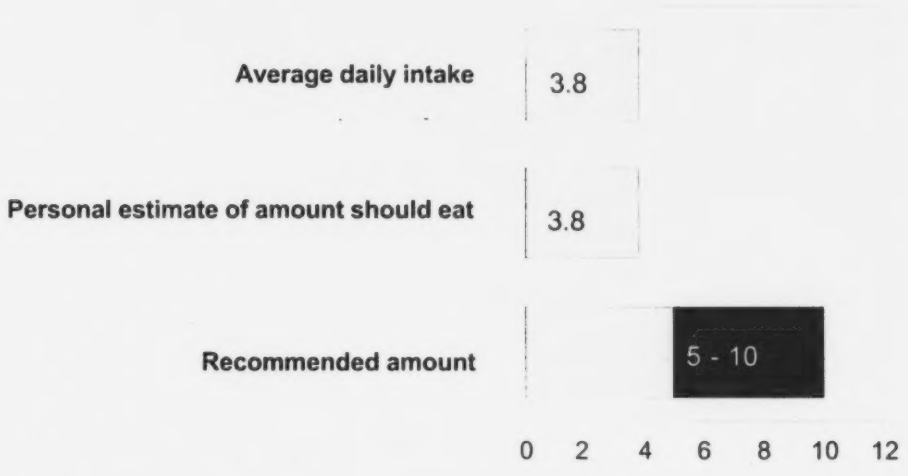
Mounting scientific evidence indicates that a diet high in vegetables and fruit plays a key role in reducing the risk of cancer. Daily consumption of 5 to 10 servings of vegetables and fruit could, by itself, decrease overall cancer incidence by at least 20%.

The Alberta Cancer Board's Division of Epidemiology, Prevention and Screening interviewed over two thousand men and women throughout Alberta, aged 18-45, for the 1998/99 Nutrition Knowledge Attitudes and Behaviors (NKAB) survey. Even though nutrition and obesity are risk factors linked to 30% of cancer deaths, **less than half of the people questioned during the NKAB survey** were aware that eating vegetables and fruit helps to prevent cancer.

The survey also found that only about one quarter of Albertans were actually consuming the recommended 5 to 10 servings of vegetables and fruit daily. Aside from lack of awareness, a major barrier to increasing vegetable and fruit consumption was the need for practical information on how to include more vegetables and fruit in the diet.

As a result of this survey, the Division of Epidemiology, Prevention and Screening is working in collaboration with regional health authorities to initiate a **social marketing campaign** aimed at showing Albertans how to more easily incorporate vegetables and fruit into their eating patterns.

Mean Daily Servings of Vegetables and Fruits, Alberta 1999



Nutrition and healthy diet

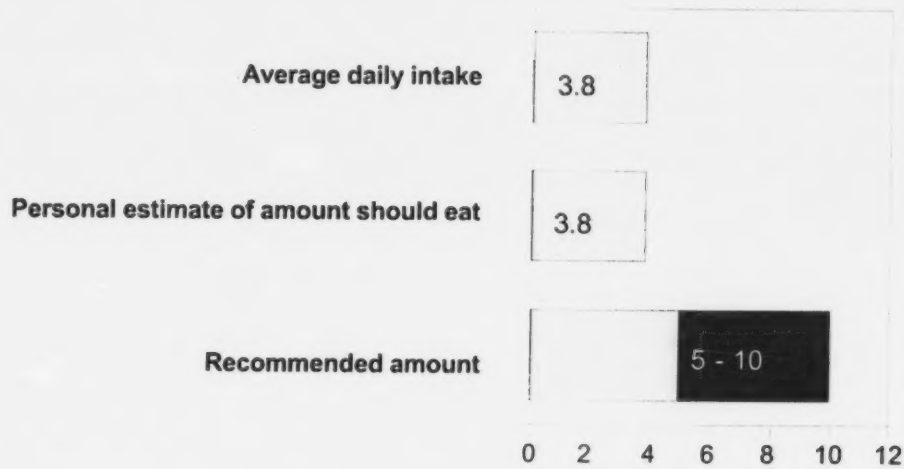
Mounting scientific evidence indicates that a diet high in vegetables and fruit plays a key role in reducing the risk of cancer. Daily consumption of 5 to 10 servings of vegetables and fruit could, by itself, decrease overall cancer incidence by at least 20%.

The Alberta Cancer Board's Division of Epidemiology, Prevention and Screening interviewed over two thousand men and women throughout Alberta, aged 18-45, for the 1998/99 Nutrition Knowledge Attitudes and Behaviors (NKAB) survey. Even though nutrition and obesity are risk factors linked to 30% of cancer deaths, **less than half of the people questioned during the NKAB survey** were aware that eating vegetables and fruit helps to prevent cancer.

The survey also found that only about one quarter of Albertans were actually consuming the recommended 5 to 10 servings of vegetables and fruit daily. Aside from lack of awareness, a major barrier to increasing vegetable and fruit consumption was the need for practical information on how to include more vegetables and fruit in the diet.

As a result of this survey, the Division of Epidemiology, Prevention and Screening is working in collaboration with regional health authorities to initiate a **social marketing campaign** aimed at showing Albertans how to more easily incorporate vegetables and fruit into their eating patterns.

Mean Daily Servings of Vegetables and Fruits, Alberta 1999



Sun Sense

Skin cancer is the most common type of cancer in Alberta. At least **4,800 new invasive cases of skin cancer** are diagnosed each year.

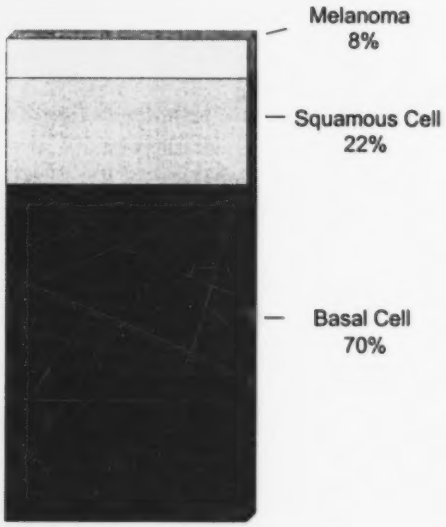
Protection from overexposure to the sun is important. Clothing, hats, shade, and a broad-spectrum sunscreen of SPF 15 or higher can all be used to provide protection. A bad sunburn in childhood can greatly increase the risk for developing melanoma later in life.

There are three types of skin cancer:

- basal cell
- squamous cell
- melanoma

Melanoma is the least common but most serious type of skin cancer because of its ability to metastasize (spread to other organs). In 1999, there were approximately **415 new invasive cases of melanoma** skin cancers recorded by the Alberta Cancer Registry.

New Invasive Cases of Skin Cancer, Alberta 1999



Nonmelanoma skin cancers (basal cell and squamous cell) are not usually included in cancer incidence statistics. They are underreported in cancer registries because they are not typically life threatening and are usually successfully treated in doctors' offices without a pathology review. In addition, the Alberta Cancer Registry only records the first case of basal cell and the first case of squamous cell nonmelanoma skin cancer diagnosed within an individual.

Skin cancer education is crucial to reducing the incidence of new cases. Currently, the Alberta Cancer Board's Division of Epidemiology, Prevention and Screening prepares and distributes an annual *Healthy Living with Sunshine* media kit to help regional health authorities better publicize the issue. In addition, the Division of EPS produces other sun protection resources, including a *Sun Sense* teaching module and a *Healthy Living with Sunshine* CD-ROM for regional health authorities and Alberta schools.

Breast cancer screening

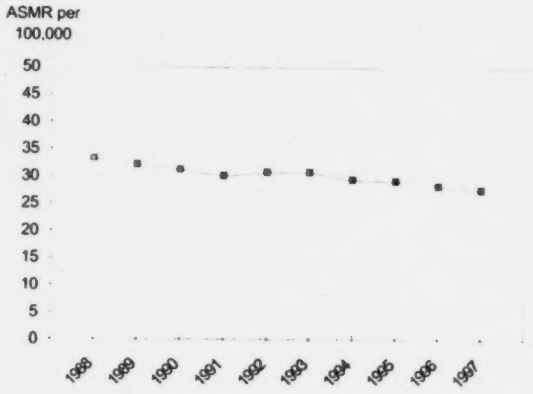
Breast cancer is a major health issue for Alberta women. In 2001, there will be an estimated 1,615 Albertan women diagnosed with invasive breast cancer and 470 deaths from this disease.

Age is the most significant risk factor for developing breast cancer. Although we don't know what causes breast cancer, screening mammography is our best tool for reducing deaths from breast cancer. Studies have shown that a **30% drop in breast cancer mortality** can be achieved by screening most women aged 50-69 once every two years.

Age-standardized mortality rates in Alberta have decreased from 33 deaths per 100,000 in 1988 to 27 deaths per 100,000 in 1997.

Despite clear evidence of the effectiveness of mammography, the latest population-based Alberta Cancer Board survey shows there are still one-third of Alberta women who are not being screened regularly.

Age-Standardized Mortality Rates (ASMR) for Invasive Breast Cancer, Alberta 1980 - 1987



Each year, the Alberta Cancer Board's **Screen Test** program provides over 20,000 screening mammograms at over 100 sites in regional health authorities throughout Alberta through an organized screening program.

Screen Test
Alberta Program for the Early Detection of Breast Cancer

The cancer detection rates for Screen Test consistently meet or exceed international standards for quality control. Screen Test has the lowest abnormality rates and the highest positive predictive values among Canadian screening programs. This means that Screen Test minimizes the number of women recommended to undergo additional tests while at the same time maintaining high rates of cancer detection among those women having additional tests.

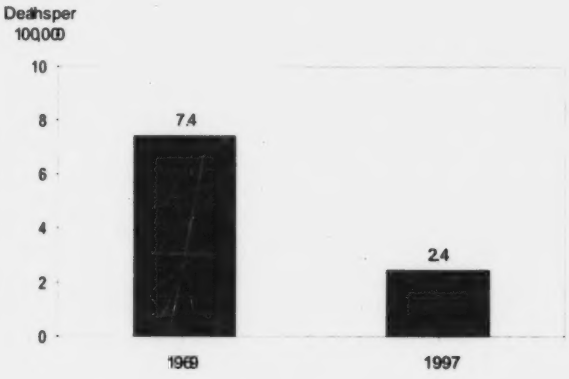
Women who participate in the Screen Test program also learn about monthly breast self-examination and the importance of annual physical examination of the breasts by a physician or trained health professional.

The Alberta Cancer Board is currently working with Alberta Health and Wellness and other mammography service providers to develop strategies that would ensure that all breast screening services in Alberta are delivered and tracked through an organized program.

Cervical cancer screening

Each year in Alberta there are 120-150 cases of invasive cervical cancer diagnosed and about 40 deaths. The Pap test is an effective tool for cervical cancer screening. It is currently recommended that women between the ages of 18 and 69, who have ever had sexual intercourse, have annual Pap tests. Women can also lower their risk of developing cervical cancer by not smoking, delaying intercourse until after the age of 18 and by limiting their number of sexual partners.

Cervical Cancer Age-Standardized Mortality Rates in Canada (1969 - 1997)



Source: *Canadian Cancer Statistics*, NCIC

Since the introduction of the Pap test in Canada, age-standardized incidence rates for invasive cervical cancer have dramatically decreased from 21.6 cases per 100,000 women in 1969 to 9.2 cases per 100,000 women in 1997. Age-standardized mortality rates have decreased from 7.4 deaths per 100,000 women in 1969 to 2.4 deaths per 100,000 women in 1997.

Even though the decrease in cervical cancer mortality rates is impressive, current rates are still unacceptable, given that invasive cervical cancer is **largely preventable** through screening for and treatment of precancerous cervical changes. Almost half of Alberta women who develop cervical cancer have never had a Pap test or did not have them frequently enough.

The reason some women are being missed is because Canada's screening system only screens women when they present themselves for testing or when they seek medical attention for other health concerns. It does not adequately follow who is and who isn't being screened regularly.

The Alberta Cervical Cancer Screening Program

In order to address the limitations of the current approach to screening, many provinces, including Alberta, are developing organized cervical cancer screening programs. The **Alberta Cervical Cancer Screening Program** was announced in February 2000 by Alberta Health and Wellness.

Program planning is underway by a committee of key stakeholders, with the Alberta Cancer Board providing the coordination. The program will enhance and strengthen the existing services by coordinating education, increasing the participation rates of women who are not being screened and increasing efforts to foster quality at all stages of the screening process.

Focus On The Future

Prostate cancer

Prostate cancer is the most common type of cancer among men (excluding nonmelanoma skin cancers). In 1998, 1389 new cases of invasive prostate cancer were diagnosed. Age is the most significant risk factor for developing prostate cancer as risk increases after age 60.

For most men, prostate cancer occurs as a localized slow-growing cancer that remains latent (undetected). Of all the men who are diagnosed with this disease, 70% will die from other causes. In spite of this, prostate cancer is the second leading cause of cancer death in men.

Currently, no effective prevention or screening strategy is available to recommend for men without symptoms. Although trials are underway, results will not be available for several years and there is not currently enough evidence to suggest that population-based screening can reduce deaths from prostate cancer. Those with symptoms should consult a physician, as diagnostic tests are available.

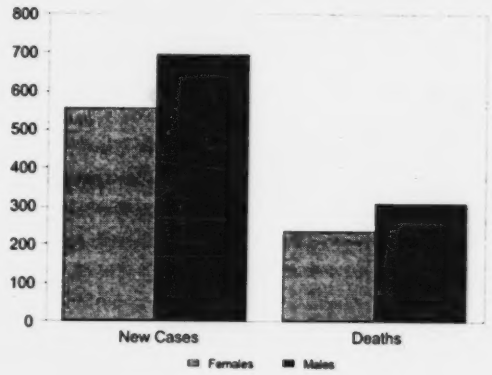
Colorectal cancer

Colorectal cancer is the fourth most commonly diagnosed cancer and the second leading cause of cancer deaths. In 1998, 555 new cases of invasive colorectal cancer were diagnosed in females and 695 new cases were diagnosed in males.

It is not clear why there is a difference in the number of new cases diagnosed for males and females. It is possible that gender differences in physical activity and nutrition levels could be contributing factors.

At present there are tests available to detect colorectal cancer but national guidelines for an organized population-based program are still under development.

Number of New Cases and Deaths of Invasive Colorectal Cancer, Alberta 1998



Physical Activity

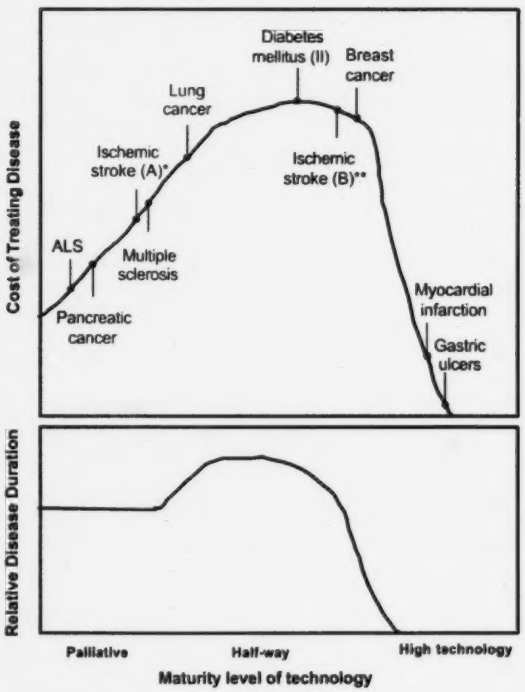
Physical activity appears to be linked to several types of cancer as well as to certain risk factors for developing cancer, such as obesity. Because of these strong links, some scientists in the Division of Epidemiology, Prevention and Screening are actively researching the effects of physical activity on cancer incidence. In addition, the Division of EPS is working collectively with several organizations to determine the frequency, duration, intensity and type of physical activity that are needed to experience reductions in cancer risk.

Research is an investment

While the costs for research are considerable, the pay back is tremendous. When little is known about treatment and prevention of a disease, the costs associated with that disease are typically only those that deal with managing the symptoms of patients affected by the disease. As research and technology increase, the costs increase, but so do the benefits associated with breakthroughs in treatment and prevention. When research and medical technology evolve to a point where they are highly effective at curing and preventing a disease, costs dramatically decrease as less is being spent on palliation.

As the diagram indicates, breast cancer is well along the continuum, but further research is needed to reach the high technology breakthroughs. Additionally, other cancers, such as pancreatic cancer, are still on the front end of this curve and require further capital investments in research in order to gain more understanding.

Evolution of Medical Technology for Selected Diseases



Source: *Science*, Volume 283, January 1, 1999

* Ischemic stroke (A) and (B) indicate what the potential impact of research on a new biotechnology (tissue plasminogen activator), could mean to the cost of treatment and quality of life for stroke patients. Note: although hospital costs increased, rehabilitation and nursing home costs decreased resulting in a net savings.

Focus On The Future

The Tomorrow Project

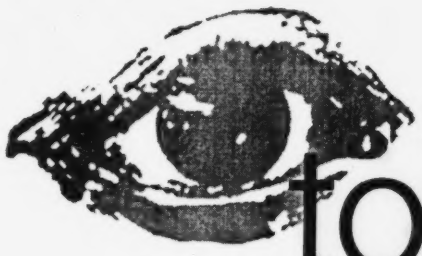
The Tomorrow Project, a population cohort study of the Alberta Cancer Board's Division of Epidemiology, Prevention and Screening, is a long-term review of the causes and lifestyle factors related to cancer. This type of research is considered to be the **'gold standard'** for studying the causes of disease.

The cohort will be composed of **50,000 Albertans who have never been diagnosed with cancer.** This ground breaking research project will recruit a randomly selected group of 35 to 69 year old Albertans and then follow them periodically until they reach the age of 85.

A **unique feature and undeniable strength** of the proposed Alberta cohort is that it will be population-based. This means that results will be generalized to virtually the entire adult population in the province and estimates of cancer incidence and other disease outcomes generated by the study will be more complete and accurate.

Since the success of the project will depend on the **willingness of the public** to enroll in a longitudinal study, an advertising and marketing firm has been engaged to develop a communication plan including a project logo, 'tag-line' and name.

Albertans chosen to participate in the Tomorrow Project will have the opportunity to build a legacy of knowledge that will help to **guide the health choices of future generations of Albertans.**



the tomorrow PROJECT

Albertans Studying the Connection Between Lifestyle and Cancer.

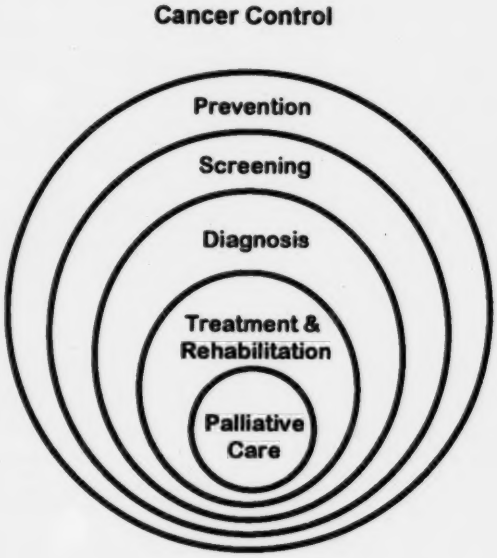
A Broader Scope

Alberta Cancer Control Initiative

Bringing cancer services closer to home for all Albertans has been a **top priority** for the Alberta Cancer Board since 1995.

Staff members in the Division of Epidemiology, Prevention & Screening work in concert with their clinical counterparts to plan and deliver cancer control services in partnership with regional health authorities (RHAs).

The concept of the Alberta Cancer Control Initiative has evolved into a network with a **coordinated and comprehensive cancer control strategy** for the province with complementary regional cancer control plans.



The **purpose of the Alberta Cancer Control Initiative** is to provide the following:

- a coordinated approach to cancer control
- improved access to cancer programs and services in Alberta communities
- consultation at first diagnosis and development, supervision and evaluation of treatment plans
- maintenance of standards of quality care
- enhanced continuity of care
- effective communication and linkages for enhanced coordination of services

Progress thus far has been achieved in establishing community cancer centres, developing regional cancer control plans, setting standards and protocols for surgery and other care, creating an aboriginal cancer strategy, forming a palliative care network, assessing psycho social oncology needs, improving communication linkages and providing prevention outreach.